PRESS RELEASE
For Montana State University-Billings

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Contract Awarded for PEM Fuel Cell Project

Montana State University-Billings has been awarded a $185,835 contract from the U.S. Army Corps of Engineers' Construction Engineering Research Laboratory (CERL) for the installation and operation of a Proton Exchange Membrane Fuel Cell (PEMFC).

Brian Gurney, Energy Program Manager for the University's Center of Applied Economic Research, said the contract "will allow us to acquire the cell, install it, commission it through a series of initial tests, and monitor and report its performance for a period of one year."

The PEMFC will be installed at the Billings Armed Forces Reserve Center on Gable Road. The unit, which measures roughly six feet by six feet by three feet, will be installed within the Reserve Center compound.

PEM fuel cells use a chemical process to combine hydrogen and oxygen into water, producing electrical current in the process. Virtually no emissions are produced and the only byproducts are water and heat.

Gurney said the unit is expected to output approximately 2.5 kilowatts of power for the Reserve Center "but this is primarily a test of the technology which can lead to future benefits." The unit also will output heat to the building.

"What makes the installation unique," Gurney said, "is that the unit will be exposed to the extremes of Montana weather. We have to supply pure water in extreme conditions. The feed lines have to be buried and wrapped in heat tape."

The grant contract calls for a minimum of 90 percent "up time," leaving little or no margin for malfunctions. The PEM unit conducts its own diagnostics, takes readings on its performance and transmits the information continuously to the manufacturer, Plug Power Inc. of Latham, N.Y. In case of a malfunction, the unit can shut itself down, or signal the need for corrective action.

Plug Power has more than 140 fuel cell units in the field, and several fuel cell demonstration projects have been installed at. U.S. Department of Defense (DoD) military bases and installations, but none have been installed in this region. CERL manages the DoD Fuel Cell Demonstration Program.

CERL if one of seven Corps of Engineers laboratories within the U.S. Army Engineer Research and Development Center. The facilities are located at four sites: Champaign, Ill.; Vicksburg, Miss.; Hanover, N.H.; and Alexandria, Va. The ERDC mission areas include: Warfighter Support; Installations; Environment; Information Technology; and Water Resources.

The objectives of the government demonstration program, according to the DoD's Web site, are to:

- Demonstrate fuel cell capabilities in real world situations,
- Stimulate growth and economies of scale in the fuel cell industry,
- Determine the role of fuel cells in DoD's long term energy strategy

Montana-Dakota Utilities Co. will have "an overarching, supervisory role in the installation and maintenance process," Gurney said. Three people from MDU will go to Plug Power in Latham, N.Y., in May to take a week-long course to become certified PEM technicians.

"MDU will serve as the front-line troubleshooting group," Gurney added. MDU, Ace Electric and Wagner Mechanical of Billings will be the prime contractors. Ace Electric and Wagner Mechanical were involved in the construction of the Armed Forces Reserve Center and, thus, are familiar with its electrical and heating systems.

Gurney said, "Fuel cell technology, especially in the PEM area, is not as advanced as some people believe. We have to have units in the field that are outside lab settings in order to facilitate "typical" operating conditions for the technology and report operating data to engineers who in turn can design a more robust product going forward."

"This is an advanced prototype," Gurney added. "If we can prove ourselves – and prove ourselves to be a good partner – we can become future partners in successive generations of the technology."